

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-6. (Canceled)

7. (Previously Presented) A method of manufacturing a semiconductor device, comprising the steps of:

applying a solution, in which a simple substance of a catalytic element for facilitating crystallization of amorphous silicon film or a compound containing the catalytic element is dissolved or dispersed, on a semiconductor film comprising amorphous silicon;

baking said semiconductor film to form a film comprising said catalytic element on said semiconductor film;

crystallizing the amorphous silicon film by carrying out a heat treatment;

removing said film comprising said catalytic element from a surface of the semiconductor film after the heat treatment;

promoting crystallinity by irradiation of laser light or intense light after removing said film comprising said catalytic element; and

adding an impurity to said semiconductor film to form at least one impurity region imparting one conductivity type in said semiconductor film after promoting crystallinity by irradiation of laser light or intense light,

wherein a kind of or plural kinds of elements selected from elements in group 14 are used as the catalytic element.

8. (Previously Presented) A method of manufacturing a semiconductor device according to claim 7, wherein germanium is used as the catalytic element.

9. (Previously Presented) A method of manufacturing a semiconductor device according to claim 8, wherein the compound containing the catalytic element is at least one selected from the group consisting of germanium bromide, germanium chloride, germanium iodide, germanium oxide, germanium sulphide, germane, germane acetate, tris (2,4-pentanedionate) germanium perchlorate, tetramethylgermane, tetraethylgermane, tetraphenylgermane, and hexaethyl germanium.

10.-44. (Canceled)

45. (New) A method of manufacturing a semiconductor device, comprising the steps of:

forming a gate electrode over an insulating surface;

forming a gate insulating film over the gate electrode;

forming a semiconductor film comprising amorphous silicon over the gate insulating film;

applying a solution, in which a simple substance of a catalytic element for facilitating crystallization of amorphous silicon film or a compound containing the catalytic element is dissolved or dispersed, on the semiconductor film comprising amorphous silicon;

baking said semiconductor film to form a film comprising said catalytic element on said semiconductor film;

crystallizing the amorphous silicon film by carrying out a heat treatment;

removing said film comprising said catalytic element from a surface of the semiconductor film after the heat treatment;

promoting crystallinity by irradiation of laser light or intense light after removing said film comprising said catalytic element; and

adding an impurity to said semiconductor film to form at least one impurity region imparting one conductivity type in said semiconductor film after promoting crystallinity by irradiation of laser light or intense light,

wherein a kind of or plural kinds of elements selected from elements in group 14 are used as the catalytic element.

46. (New) A method of manufacturing a semiconductor device, comprising the steps of:

applying a solution, in which a simple substance of a catalytic element for facilitating crystallization of amorphous silicon film or a compound containing the catalytic element is dissolved or dispersed, on a semiconductor film comprising amorphous silicon;

baking said semiconductor film to form a film comprising said catalytic element on said semiconductor film;

crystallizing the amorphous silicon film by carrying out a heat treatment;

removing said film comprising said catalytic element from a surface of the semiconductor film after the heat treatment;

promoting crystallinity by irradiation of laser light or intense light after removing said film comprising said catalytic element;

adding an impurity to said semiconductor film to form at least one impurity region imparting one conductivity type in said semiconductor film after promoting crystallinity by irradiation of laser light or intense light; and

patterning said crystallized semiconductor film into at least one semiconductor island after removing said film comprising said catalytic element,

wherein a kind of or plural kinds of elements selected from elements in group 14 are used as the catalytic element.

47. (New) A method of manufacturing a semiconductor device, comprising the steps of:

applying a solution, in which a simple substance of a catalytic element for facilitating crystallization of amorphous silicon film or a compound containing the catalytic element is dissolved or dispersed, on a semiconductor film comprising amorphous silicon;

baking said semiconductor film to form a film comprising said catalytic element on said semiconductor film;

crystallizing the amorphous silicon film by carrying out a heat treatment;

removing said film comprising said catalytic element from a surface of the semiconductor film after the heat treatment;

promoting crystallinity by irradiation of laser light or intense light after removing said film comprising said catalytic element; and

adding an impurity to said semiconductor film to form at least one impurity region imparting one conductivity type in said semiconductor film after promoting crystallinity by irradiation of laser light or intense light,

wherein germanium is used as the catalytic element.

48. (New) A method of manufacturing a semiconductor device, comprising the steps of:

applying a solution, in which a simple substance of a catalytic element for facilitating crystallization of amorphous silicon film or a compound containing the catalytic element is dissolved or dispersed, on a semiconductor film comprising amorphous silicon;

baking said semiconductor film to form a film comprising said catalytic element on said semiconductor film;

crystallizing the amorphous silicon film by carrying out a heat treatment;

removing said film comprising said catalytic element from a surface of the semiconductor film without changing a shape of said semiconductor film after the heat treatment;

promoting crystallinity by irradiation of laser light or intense light after removing said film comprising said catalytic element; and

adding an impurity to said semiconductor film to form at least one impurity region imparting one conductivity type in said semiconductor film after promoting crystallinity by irradiation of laser light or intense light,

wherein a kind of or plural kinds of elements selected from elements in group 14 are used as the catalytic element.

49. (New) A method of manufacturing a semiconductor device, comprising the steps of:

forming a gate electrode over an insulating surface;

forming a gate insulating film over the gate electrode;

forming a semiconductor film comprising amorphous silicon over the gate insulating film;

applying a solution, in which a simple substance of a catalytic element for facilitating crystallization of amorphous silicon film or a compound containing the catalytic element is dissolved or dispersed, on a semiconductor film comprising amorphous silicon;

baking said semiconductor film to form a film comprising said catalytic element on said semiconductor film;

crystallizing the amorphous silicon film by carrying out a heat treatment;

removing said film comprising said catalytic element from a surface of the semiconductor film after the heat treatment;

promoting crystallinity by irradiation of laser light or intense light after removing said film comprising said catalytic element; and

adding an impurity to said semiconductor film to form at least one impurity region imparting one conductivity type in said semiconductor film after promoting crystallinity by irradiation of laser light or intense light,
wherein germanium is used as the catalytic element.

50. (New) A method of manufacturing a semiconductor device according to claim 45, wherein germanium is used as the catalytic element.

51. (New) A method of manufacturing a semiconductor device according to claim 46, wherein germanium is used as the catalytic element.

52. (New) A method of manufacturing a semiconductor device according to claim 48, wherein germanium is used as the catalytic element.

53. (New) A method of manufacturing a semiconductor device according to claim 50, wherein the compound containing the catalytic element is at least one selected from the group consisting of germanium bromide, germanium chloride, germanium iodide, germanium oxide, germanium sulphide, germane, germane acetate, tris (2,4-pentanedionate) germanium perchlorate, tetramethylgermane, tetraethylgermane, tetraphenylgermane, and hexaethyl germanium.

54. (New) A method of manufacturing a semiconductor device according to claim 51, wherein the compound containing the catalytic element is at least one selected from the group consisting of germanium bromide, germanium chloride, germanium iodide, germanium oxide, germanium sulphide, germane, germane acetate, tris (2,4-pentanedionate) germanium perchlorate, tetramethylgermane, tetraethylgermane, tetraphenylgermane, and hexaethyl germanium.

55. (New) A method of manufacturing a semiconductor device according to claim 52, wherein the compound containing the catalytic element is at least one selected from the group consisting of germanium bromide, germanium chloride, germanium iodide, germanium oxide, germanium sulphide, germane, germane acetate, tris (2,4-pentanedionate) germanium perchlorate, tetramethylgermane, tetraethylgermane, tetraphenylgermane, and hexaethyl germanium.

56. (New) The method according to claim 45 wherein said semiconductor device is a device selected from the group consisting of a video camera, a mobile computer, a portable telephone, a head mount display and a projector.

57. (New) The method according to claim 46 wherein said semiconductor device is a device selected from the group consisting of a video camera, a mobile computer, a portable telephone, a head mount display and a projector.

58. (New) The method according to claim 47 wherein said semiconductor device is a device selected from the group consisting of a video camera, a mobile computer, a portable telephone, a head mount display and a projector.

59. (New) The method according to claim 48 wherein said semiconductor device is a device selected from the group consisting of a video camera, a mobile computer, a portable telephone, a head mount display and a projector.

60. (New) The method according to claim 49 wherein said semiconductor device is a device selected from the group consisting of a video camera, a mobile computer, a portable telephone, a head mount display and a projector.